

GPS Safety Summary

Substance Name:

Mercaptoacetic acid

1. General Statement

Mercaptoacetic acid is a colourless liquid. Products containing mercaptoacetic acid are commercially available to industrial customers as mercaptoacetic acid or as 80% aqueous solution of mercaptoacetic acid.

Toxic if inhaled, swallowed or in contact with skin, corrosive for the skin and the eyes, this substance must be carefully handled and stored to preserve human health and environment.

2. Chemical Identity

Name: Mercaptoacetic acid
Brand names: Thioglycolic acid
Chemical name (IUPAC): Sulfanylacetic acid
CAS number(s): 68-11-1
EC number (optional): 200-677-4
Molecular formula (optional): C₂H₄O₂S
Structure (optional):



3. Use and applications

Mercaptoacetic acid is an excellent reducing agent in alkaline medium. It is used as an intermediate for the production of esters used as stabilisers in PVC polymers and in the synthesis of pharmaceuticals and pesticide compounds. It is used as a salt in cosmetic applications and in the leather industry. The salts can be used in stripping solutions for metal surfaces.

4. Physical / Chemical properties

Property	Value
Physical state (Liquid/solid/gaseous)	Liquid at 20°C and 1013 hPa
Colour	Clear colourless
Odour	Slightly pungent
Molecular weight	92.117 g/mol
Density	1.3265 at 20°C

Melting / boiling point	-16.2°C at 1013 hPa
Boiling Point	207.9°C at 1013 hPa
Flammability	Not flammable
Explosive properties	Not explosive based on the structure
Oxidising properties	Not oxidising based on the structure
Self-ignition temperature	315°C at 1013 hPa
Vapour pressure	16 Pa at 25°C
Water solubility	10 g/l at 20°C
Flash point	131.5°C (closed cup) at 1013 hPa
Octanol-water partition coefficient (LogKow)	-2.99 at 22°C
Viscosity	4.69 mm ² /s at 20°C

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful by inhalation, toxic if swallowed and in contact with skin.
Irritation / corrosion Skin / eye/ respiratory tract	Corrosive to the skin and the eyes
Sensitisation	Risk of skin sensitization
Toxicity after repeated exposure Oral / inhalation / dermal	No cumulative toxicity was identified in the repeated oral and dermal toxicity studies
Genotoxicity / Mutagenicity	No genotoxic potential was observed in <i>in vitro</i> and <i>in vivo</i> assays
Carcinogenicity	Not suspected to be carcinogenic based on the lack of genotoxicity and cumulative toxicity
Toxicity for reproduction	Not considered to be a reproductive toxicant

6. Environmental Effects

Effect Assessment	Result
Aquatic Toxicity	Harmful for plants (algae) and invertebrates (acute EC50s respectively 27 and 38 mg/L). No acute toxicity observed for fish up to 100 mg/L

Fate and behaviour	Result
Biodegradation	Readily biodegradable (67% mineralisation in 28d according to OCDE TG 301D conditions)
Bioaccumulation potential	Very low partition coefficient logKow < 1 meaning a negligible potential for bioaccumulation
PBT / vPvB conclusion	Not PBT nor vPvB.

7. Exposure

7.1 Human health

The most likely route of human exposure (workers) to mercaptoacetic acid is through inhalation and/or to a much lesser extent dermal contact. In industrial settings, ingestion is not an anticipated route of exposure.

Mercaptoacetic acid is toxic if swallowed, inhaled or by contact with skin, and is corrosive to skin and eyes.

The probability of exposure to workers is expected to be low because this product is manufactured in enclosed controlled environment and is transported in well sealed containers. However, workers may be exposed during (un)loading, mixing, sampling, analysis or maintenance operations and particularly in case of batch processes. The exposure must be kept as minimum as possible by the use of appropriate risk management measures as suitable collective and personal protective equipment, good industrial hygiene practices and risk communication through appropriate training of workers.

For more information about conditions recommended, refer to the extended safety data sheet in Europe.

7.2 Environment

Based on its physico-chemical properties, mercaptoacetic acid is water soluble and is considered to be non-volatile. It is not expected to adsorb to suspended solids, sediments and soil, and it has a low potential for bioaccumulation. Moreover, the substance is readily biodegradable.

Care should be taken to avoid releases of this product to sewage, drainage systems, water bodies and the atmosphere. Spillage shall be quickly collected in the event of an accidental release. More information about release measures and accidental release measures are available in the extended safety data sheet.

8. Risk Management recommendations

Human health measures	
Organizational	Implement a good basic standard of occupational hygiene. Ensure operatives are well informed of the hazards and trained to minimize exposures. Hygiene measures must be respected and incompatible materials must be clearly identified.
Protection	Eye/Face protection: Safety glasses with side-shields. Face-shield.
	Skin protection: Combination with delayed penetration
	Hand protection: Splash contact, intermittent and prolonged: neoprene gloves, impervious butyl rubber gloves (thickness 0.75 mm), complying with EN 374.
	Respiratory protection: Self contained breathing apparatus
Engineering controls	Ensure sufficient air exchange and/or exhaust in work area. Ensure that eyewash stations and safety showers are close to workstation locations.

Environmental protective measures

- This substance and all industrial releases that may contain the substance must be treated to avoid any exposure to the environment.
- Eliminate by incineration in accordance with local and national regulations.

9. Regulatory Information / Classification and Labelling



9.1 Regulatory Information

This substance has been registered under:

- EU Regulation EC 1907/2006 (REACH)

9.2 Classification and labelling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification	
According to REGULATION (EC) no 1272/2008:	
<ul style="list-style-type: none">– Oral: Acute toxicity cat.3– Inhalation: Acute toxicity cat.3– Dermal: Acute toxicity cat.3– Skin corrosion cat.1B– Serious eye damage cat.1	
Signal Word	
– Danger	
Pictogram	
– GHS06: Skull and crossbones	
– GHS05: Corrosion	
Hazard statement	
<ul style="list-style-type: none">– H301: Toxic if swallowed– H311: Toxic in contact with skin– H331: Toxic if inhaled– H314: Causes severe skin burns and eye damage	
Additional classification according to Globally Harmonized System (GHS)	
Acute aquatic toxicity cat.3 (H402 : Harmful to aquatic life)	

10. Contact Information within Company

For further information on this substance or product safety summary in general, please contact:

- Arkema web site : on the TBM product page, an actualised contact name is provided
<http://www.arkema.com>
- ICCA portal where the GPS Safety Summary is posted:
<http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/>

11. Date of Issues / Revision

- Date of issue: 2014/07/31
- Date of revision:

12. Disclaimer

The information contained in this paper is intended as advice only and whilst the information is provided in utmost good faith and has been based on the best information currently available, is to be relied upon at the user's own risk.

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